

WHAT IS CLAIMED IS:

1. A magnetic device having a layer containing fine pores and having wirings on both faces of the layer formed on a substrate, wherein at least a part of the pores are filled with a layered column formed by stacking magnetic layers and nonmagnetic layers alternately, and at least a part of the pores filled with a conductive column as writing wires for writing into the magnetic layers in the adjacent pores.

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2. The magnetic device according to claim 1, wherein the fine pores are nano-holes of alumina formed by anodic oxidation.

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3. The magnetic device according to claim 1, wherein a part of the pores serve to intercept a magnetic field.

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4. The magnetic device according to claim 3, wherein the pores serving to intercept the magnetic field surround a unit cell.

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5. The magnetic device according to claim 1, wherein the magnetic layer contains Co, and the nonmagnetic layer contains Cu.

6. The magnetic device according to claim 1,

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wherein the writing wire contains Cu.

7. The magnetic device according to claim 1,
wherein the pores are arranged in a honeycomb
5 arrangement.

8. The magnetic device according to claim 7,
wherein the pores filled with the layered column
surround the writing wire.

10 9. The magnetic device according to claim 7,
wherein the pores serving as the writing wire surround
the pores filled with the layered column.

15 10. The magnetic device according to claim 1,
wherein the pores are arranged in a rectangular array.

11. The magnetic device according to claim 10,
wherein the pores filled with the layered column
20 surround the pore serving as the writing wire.

12. The magnetic device according to claim 10,
wherein the pores serving as writing wires surround the
pore filled with the layered column.

25 13. The magnetic device according to claim 1,
wherein the ratio of the sectional area S (cm²) of the

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pore and the length (cm) of the pore satisfy the relation:

$$10^5 < L/S < 10^8$$